CLAIMS

What is claimed is:

1. A method for semiconductor dice on a wafer in a process comprising:

determining defects on said semiconductor dice on said wafer;

classifying each of said defects by size and location, said determining and said classifying comprising classifying each of said defects into one of size range populations of defects;

assigning a weight to said each of said defects representing an estimated effect of said each of said defects on die yield for said semiconductor dice;

determining an estimated die yield loss (DYL) for each die of said semiconductor dice based on number and weight of said defect(s) on said each die of said semiconductor dice, determining said estimated die yield loss (DYL) including calculating an estimated die yield loss having lower and upper limits;

summing all said DYL of said semiconductor dice on said wafer to obtain a wafer yield loss (WYL);

subdividing the defects into a plurality of size range populations of defects for said semiconductor dice; and

determining a relative contribution of each size range population of defects of said plurality of said semiconductor dice to said wafer yield loss WYL.

2. The method of claim 1, wherein said determining said estimated die yield loss (DYL) comprises calculating an estimated die yield loss having lower and upper limits of zero and 1.0, respectively.

3. The method of claim 2, wherein said lower limit comprises a representation of no yield loss attributable to said defects and said upper limit comprises a representation of fatal yield loss attributable to said defects.

4. The processing method of claim 1, wherein said subdividing said defects into said plurality of size range populations of defects comprises subdividing said defects into a plurality of 0 to 10 size range populations.

5. A method for semiconductor dice on a wafer comprising:

determining defects on said semiconductor dice on said wafer;

classifying each of said defects by size and location, said inspecting and said classifying comprising classifying said each of said defects into one of size range populations of defects;

assigning a weight to said each of said defects representing an estimated effect of said defects on die yield for said semiconductor dice;

determining an estimated die yield loss (DYL) for each die of said semiconductor dice based on number and weight of said defect(s) on said each die of said semiconductor dice;

summing all DYL of said semiconductor dice on said wafer to obtain a wafer yield loss (WYL);

subdividing the defects into a plurality of size range populations of defects; and

determining a relative contribution of each size range population of defects of said plurality to said wafer yield loss WYL, said determining the relative contribution of said each size range population of defects of said plurality to said wafer yield loss comprises:

discarding data for said each size range population of defects of said plurality and calculating, in turn, a drop in said wafer yield loss for combined size range populations excepting the discarded data;

summing the calculated wafer yield losses to obtain a drop sum;

dividing said drop sum to determine a relative drop attributable to said each size range population of defects of said plurality; and

randomly selecting defects from said each size range population of defects.

6. The processing method of claim 2, further comprising:

randomly selecting defects from said each size range population of defects of said plurality, a number selected from said each size range population of defects of said plurality in proportion to said relative contribution thereof, said randomly selected defects being weighted to represent defects having greatest effect on yield losses.

7. The processing method of claim 6, further comprising:

reviewing said randomly selected defects and determining in-line action required to reduce wafer yield losses.

8. The processing method of claim 7, wherein said reviewing said randomly selected defects includes visual inspection by a microscope.

9. The processing method of claim 7, wherein said determining in-line action comprises determining if an individual die of said semiconductor dice on said wafer is acceptable to proceed in a manufacturing process.

10. The processing method of claim 5, wherein said inspecting said semiconductor dice is performed by an automated surface inspection tool.

11. A method for semiconductor dice in wafer form comprising:

determining defects of said semiconductor dice;

classifying each of said defects by size and location;

assigning a weight to said each of said defects representing an estimated effect of said each of said defects on die yield;

determining an estimated die yield loss (DYL) for each die based on number and weight of said defect(s) on said each said die of said semiconductor dice;

summing all DYL of said semiconductor dice on said wafer to obtain a wafer yield loss (WYL);

subdividing the defects into a plurality of size range populations of defects;

determining a relative contribution of each size range population of defects of said plurality to said wafer yield loss WYL;

randomly selecting defects from said each size range population of defects of the plurality, a number selected from said each size range population of defects of the plurality in proportion to said relative contribution thereof, said randomly selected defects weighted to represent defects having greatest effect on yield losses;

reviewing said randomly selected defects.

12. The method of claim 11, further comprising:

reviewing said randomly selected defects and determining in-line action required to reduce said wafer yield losses.

13. The processing method of claim 11, wherein said inspecting on said wafer said dice and said classifying each of said defects comprises classifying each of said defects into one of said plurality of size range populations of defects.

14. The processing method of claim 11, wherein said determining said estimated die yield loss (DYL) comprises calculating an estimated die yield loss having lower and upper limits of zero and 1.0, respectively.

15. The processing method of claim 14, wherein said lower limit comprises a representation of no yield loss attributable to said defects and said upper limit comprises a representation of fatal yield loss attributable to said defects.

16. The processing method of claim 11, wherein said subdividing said defects into said plurality of size range populations of defects comprises subdividing said defects into a plurality of 0 to 10 size range populations.

17. The processing method of claim 11, wherein said determining the relative contribution of said each size range population of defects of said plurality to said wafer yield loss comprises:

discarding data for said each size range population of defects of said plurality and calculating, in turn, a drop in said wafer yield loss for combined size range populations excepting the discarded data;

summing the calculated drop in wafer yield losses to obtain a drop sum; and

dividing said drop sum to determine a relative drop attributable to said each size range population of defects of said plurality.

18. The method of claim 12, wherein said determining in-line action required to reduce said wafer yield losses comprises determining if an individual die of said semiconductor dice on said wafer is acceptable to proceed in a manufacturing process.